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Computer Engineering

EEE 471 Assignment

**1.Explain briefly the signal processing and interfacing techniques in measuring instruments**

Signal processing is an electrical engineering subfield that focuses on analyzing, modifying, and synthesizing signals such as sound, images, and scientific measurements.

A sensor can be defined as a device that converts signals from one energy domain to electrical domain, I can also define a sensor as an input device which provides an output signal with respect to a specific physical quantity input. Both a sensor and a transducer are used to sense a change within the environment they are surrounded by or an object they are attached to, but a sensor will give an output in the same format and a transducer will convert the measurement into an electrical signal.

An Interface is a shared boundary between system elements defined by common physical interconnection characteristics, signal characteristics, and meanings of interchanged signals, it allows a component to function independently while using interfaces to communicate with other components via an input/output system and an associated protocol.

Interfacing techniques include memory interfacing and Input/output interfacing.

**2. Explain briefly the expert system instrumentation**

An expert system is a computer system emulating the decision-making ability of a human expert, they are designed to solve complex problems by reasoning through bodies of knowledge, represented mainly as if–then rules rather than through conventional procedural code. Expert System is a part of the Artificial Intelligence, a solution software for complicated problems, which solving the problems need experiences and knowledge.